

REMARKS

The application contains claims 9-18, 20-23, 26-28, 30-33 and 37-38.

ALLOWABLE SUBJECT MATTER

Applicants thank the Examiner for indicating that claims 11 and 13 are allowable if they are rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants elect to defer rewriting of these allowable claims until the Examiner reviews the following remarks.

ALL CLAIMS DEFINE OVER THE ART.

All pending claims are allowable over the cited art. In view of the following remarks, Applicants respectfully request allowance of the application.

Claims 9-10, 12, 14-18 and 26-28 define over the cited art.

Claims 9-10, 12, 14-18, and 26-28 stand rejected under U.S.C. § 102(e) as being anticipated by Rappoport et al. (U.S. Pat. No. 6,549,987). Claims 30-33 stand rejected under U.S.C. § 103(a) as being unpatentable over Rappoport. These rejections are respectfully traversed.

Claims 10, 14, 16, and 26 recite, in part:

reassigning data requests associated with remaining conflicting cachelet pointers to unused cachelets [claim 10];

reassigning remaining conflicting data requests to unused cachelets [claim 14]; and

assigning remaining data requests to unused cachelets according to a default assignment scheme [claims 16 and 26].

The cited art does not teach this subject matter. Rappoport discloses that when an entire instruction segment cannot be retrieved from the cache in a single clock cycle, only a portion of the instruction segment is retrieved from the cache and the remaining instruction segment(s) are deferred another clock cycle. In Rappoport, conflicting requests must wait.

The Office Action suggests that Rappoport's disclosure has the same effect as the claimed invention and, therefore, an anticipation rejection is proper. This is plainly wrong.

Even if the prior art achieves the same result as the claimed invention, it would not anticipate the pending claims unless it teaches every element therein. See MPEP §2131. Here, this does not occur. Rappoport does not reassign any request to unused cachelets. In Rappoport's system, when a conflict occurs, the same request is sent to the same cache bank identified by the same bank vector; the request merely waits a cycle until it is the highest priority request in the cache.

Applicants also dispute the Examiner's characterization that Rappoport has the same effect as the claimed invention. As noted throughout the specification, the present invention permits multiple requests to be applied to cachelets in parallel. When a conflict occurs and a request is reassigned to an unused cachelet, there is a chance that the requested data will be present and the request can be satisfied immediately. In Rappoport's system, requests must wait when a conflict occurs. Clearly, the present invention provides performance advantages over Rappoport's system.

Accordingly, independent claims 10, 14, 16, and 26 are allowable over the cited art. For the same reasons, claims 9 and 12 (which depend from independent claim 10), claims 15 (which depend from independent claim 14), claims 17-18 (which depend from independent claim 16), and claims 27-28 (which depend from independent claim 26) are also allowable. Withdrawal of various rejections of claims 9-10, 12, 14-18, and 26-28 under 35 U.S.C. § 102(e) is therefore respectfully requested.

Claims 30-33 define over the cited art.

Claims 30-33 depend variously from claims 10, 14 and 26 and recite:

forwarding the reassigned data requests in parallel with the other forwarded data requests [claim 30];

forwarding the reassigned data requests in parallel with the non-conflicting data requests and the one conflicting data request [claim 31];

forwarding the assigned data requests to the unused cachelets in parallel with the other forwarded data requests [claim 32];

forwarding the assigned data requests in parallel with the forwarding of data requests having valid cachelet pointers [claim 33].

Rappoport's disclosure is in direct conflict with these recitations. Whereas claim 30 states that the reassigned data requests are forwarded in parallel with other data requests, Rappoport

discloses that conflicting requests must wait. The anticipation rejections to claims 30-33 must be withdrawn.

Claims 20-23 define over the cited art.

Claims 20-23 stand rejected under U.S.C. § 102(e) as being anticipated by Rappoport. This rejection is respectfully traversed.

Claims 20 and 22 recite, in part:

a second layer of cache to receive a load that misses the cachelet to which it was assigned.

The Office Action contends that Rappoport anticipates claims 20-23 because “since the data is supplied by either [the instruction cache or the segment cache], when the first cache memory layer cannot supply the data, the second segment cache memory layer must receive the missed request.” Applicants respectfully disagree.

Rappoport discloses retrieving data from the cache. Rappoport, however, does not distribute loads to cachelets. In Rappoport, an instruction is retrieved either in its entirety or in segments. If the instruction is not retrieved in its entirety but in segments, the retrieved instruction segment is saved in the segment cache while the remaining instruction segment is still stored in the instruction cache. Rappoport’s instruction segment engine then predicts when the remaining instruction segment of the retrieved instruction segment will be retrieved from the instruction cache. Only when the remaining instruction segment(s) is to be executed, Rappoport’s selector retrieves the retrieved instruction segment from the segment cache. Rappoport, however, does not disclose, teach, or suggest a load that misses the cachelet to which it was assigned. Moreover, Rappoport does not disclose, teach, or suggest a second layer of cache to receive a load that misses the cachelet to which it was assigned as claimed in claims 20 and 22.

Accordingly, independent claims 20 and 22 are allowable over the cited art. For the same reasons, claims 21 and 23, which depend from independent claims 20 and 22, respectively, are also allowable. Withdrawal of the §102(e) rejections of claims 20-23 is therefore respectfully requested.

New Claims 37-38 are Allowable over the Cited Art.

New claims 37-38 are presented for examination. They recite similar subject matter as pending claims 30-33 and, therefore, present no new issues for examination. These claims also define over Rappoport because they recite forwarding of reassigned loads and non-reassigned loads to cachelets in parallel.

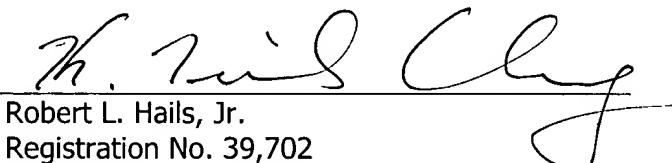
CONCLUSION

All rejections have been overcome. Applicants respectfully request allowance of the application.

The Office is hereby authorized to charge any additional fees or credit any overpayments under 37 C.F.R. 1.16 or 1.17 to Kenyon & Kenyon Deposit Account No. 11-0600. The Examiner is invited to contact the undersigned at (202) 220-4310 to discuss any matter concerning this application.

Respectfully submitted,

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